DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027727
Date Inspected: 06-Jun-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1930
Location: Job Site

CWI Name:	As noted below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS OBG

Summary of Items Observed:

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

Orthotropic Box Girder (OBG) section: The QC Documents observed being used by this QA Inspector for the following weld joints appeared to be designated as Seismic Performance Critical Members (SPCM).

13E PP123-E2.8-BW1 (Interior)

This QA Inspector made random observations of ABF welder Steven Davis performing Shielded metal Arc Welding (SMAW) in the 3G vertical position on the web joint of 13E PP123-E2.8-BW1 (Beam Web) on the interior of the OBG. The welder was previously observed completing the BF2 (Beam Flange) at the same location initiated on 6/5/2012. This QA Inspector observed QC Inspector Sal Merino verify prior to the start of welding operations, that the minimum preheat temperature as per the approved WPS was established; and verified that the welding parameters (Amps and Travel Speed) were in accordance with ABF-WPS-D1.5-1030. Upon completion of face “A” of BW1, the welder began work on BF3 at the same location. On a subsequent observation to monitor quality, this QA Inspector observed ABF welder Rick Clayborn (ID 2773) using the Carbon Arc Gouging (CAG) technique to back gouge the root side of the joints on BW1 and BF1. QC Inspector Salvador Merino performed Magnetic Particle (MT) Inspection on the back gouge sites to determine soundness of the metal and verified that no relevant indications were noted. This QA Inspector randomly observed welder Steven Davis commence welding operations on BW1 and BF1 through completion during the remainder of the shift. This QA Inspector

noted that the work at this location was completed on this date and appeared to be in general conformance with the contract specifications.

13E PP121.5-BF2 (Interior)

This QA Inspector randomly observed ABF welder Edward Brown (ID 9331) performing SMAW in the 4G overhead position on BF2 at 13E PP121.5-BF2 on the interior of the OBG. This QA Inspector observed QC Inspector Sal Merino verify prior to the start of welding operations, that the minimum preheat temperature as per the approved WPS was established; and afterwords verified that the welding parameters (Amps and Travel Speed) were in accordance with ABF-WPS-D1.5-1030. The welder was observed cleaning the work between passes using a small disc grinder and brushes as QC measured inter-pass temperatures. On a subsequent observation, ABF welder Rick Clayborn had CAG the root side of the weld and QC inspector Salvador Merino performed MT with no rejectable indications noted. This QA Inspector observed welder Edward Brown commence welding on the root side of the joint. The work progressed throughout the remainder of the shift without incident and this QA Inspector noted at the time of the observations no issues were noted

13E PP124.5-E2.2-BW1 (Interior)

This QA Inspector randomly observed ABF welder Khit Lounechaney (ID 4985) initiate welding operations on the Complete Joint Penetration (CJP) joint on 13E PP124.5-E2.2-BW1 on the interior of the OBG. The welder was observed pre-heating the joint prior to welding in the 3G vertical position utilizing E7018-H4R electrodes drawing amperage of 137. QC Inspector Salvador Merino was present to monitor the welding and the parameters as they pertain to ABF-WPS-D1.5-1030. Between passes the welder was observed cleaning the work using a small disc grinder as QC measured the inter-pass temperatures with Tempilstik Heat Indicators. On a subsequent observation, it was noted that the welder had completed face “A” of the web and began work on BF1 at this location. This QA Inspector noted that the 3.2mm electrodes were stored in electrically heated thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical welding parameters. It was noted by this QA Inspector 13E PP124.5-E2.2-BW1 and BF1were 50% complete and appeared to be in general conformance with the contract specifications.

13E/14E-A1 Welding Repair (Interior)

This QA Inspector randomly observed the repair welding operations performed by ABF certified welder Khit Lounechaney (ID 4985) at the following locations; 13E/14E-A1 and 13E/14E-LS3 on the interior of the OBG. ProHeat 35 thermal blankets were placed over the welds to pre-heat to 110°C (225°F) prior to excavation with Carbon Arc Gouging (CAG). Upon removal of the discontinuities, QC Inspector Salvador Merino performed Magnetic Particle Testing (MT) to ensure soundness of the metal and observed no relevant indications and recorded the dimensions of the excavations which are listed below. The welder was observed depositing metal by utilizing the Shielded Metal Arc Welding (SMAW) process in the 1G flat and 4G overhead positions respectively, employing 3.2mm E7018-H4R electrodes drawing amperage of 127 as pertaining to ABF-WPS-D1.5-1004-Repair. This QA Inspector verified that the electrodes were obtained from a baking oven at the correct temperature and within acceptable exposure limits. The welder was observed cleaning the start/stop edges of the work utilizing

small disc grinders and compressed air and restored the base metal to the original surface and ground smooth, and the welds to their specific profiles. Post Weld Heat Treatment (PWHT) was applied to each completed weld surface at 230°C (450°F) for a period of 1 hour in accordance with Section 12.15 of AWS D1.5-2002. The repairs were completed on this date.

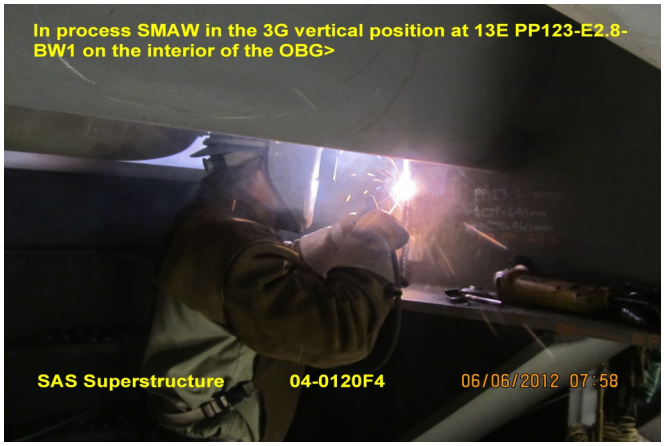
13E/14E-A1; y+1275mm: 140mm in length, 50mm wide and 4mm deep.
13E/14E-LS3; y+100mm: 70mm in length, 20mm wide and 6mm deep.

13E PP122.2 QA NDT (Exterior)

This QA Inspector performed Magnetic Particle (MT) testing on the Drop-In Panel Deck Weld located at 13E PP122.2 on the exterior of the OBG. This QA Inspector performed MT testing utilizing the yoke method in conformance with ASTM E 709 and the standard of acceptance with D1.5 section 6.26. This QA Inspector noted that no rejectable indications were found at the time of testing. This QA Inspector generated a TL-6028 MT report on this date. The completed work at this location appeared to be in general conformance with the contract specifications.

Summary of Conversations:

This QA Inspector discussed welder assignments and locations in the Drop-In panels with QC Inspector Salvador Merino.



Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910 , who represents the Office of Structural Materials for your project.

Inspected By:	Frey,Doug	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer